Vaidehi Bedekar

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EDUCATION

Vellore Institute of Technology   AP, India
Bachelor of Technology - Computer Science; GPA: 8.38   *Sept 2020 - July 2024*
Courses: *Computer vision, Machine learning, deep learning, Databases, Data Structures, Analysis of Algorithms, NLP, Cloud computing*

SKILLS SUMMARY

- **Languages:** Python, JavaScript, SQL, Bash, JAVA , HTML , CSS
- **Frameworks:** Scikit, NLTK, SpaCy, TensorFlow, Keras, Pandas, Flask, NodeJS, React, RestAPI
- **Tools:** Power Bi, GIT, MySQL, SQLite , Excel , AWS
- **Soft Skills:** Leadership, Event Management, Writing, Public Speaking, Critical Thinking , Logical thinking

EXPERIENCE

Freelancer   Remote
Data Scientist   *Feb 2023 - present*

- **Developed a robust face recognition system for CCTV footage**: enhancing NIR images using Gaussian Blur, CLAHE, and Cycle GAN for NIR-to-visible translation. Achieved 86% accuracy by fine-tuning YOLOv9 for night vision imagery, significantly boosting surveillance capabilities.
- **Intrusion Detection for DDoS, DoS, and Benign Attacks**: Built a meta-learner model using stacking technology on the CIC IoT dataset, combining LSTM, CNN, and LightGBM models. Each model was individually trained, and their predictions were stacked and fed into a dense neural network, achieving an accuracy of 99%. The model demonstrated high precision (0.98) and recall (0.98) across various attack types, significantly enhancing intrusion detection capabilities.
- **Heart rate prediction model using facial video analysis.**: The forehead region was isolated as the region of interest (ROI) with OpenCV and MediaPipe, from which RGB signals were extracted. These signals were processed using low-band pass, median, and standard deviation filters to measure heart rate accurately.The effectiveness of real-time heart rate monitoring from facial videos, enhancing applications in health monitoring and fitness tracking.

PROJECTS

- **SmartStay: Integrated Hotel Performance Management and Insight Platform**:
  * Developed SmartStay, an advanced hotel performance management platform, integrating a Large Language Model (LLM) like Google's PALM 2 with a vector database for sophisticated data retrieval via natural language interactions.
  * Initially, the LLM is trained on SQL databases to transform complex queries into SQL commands, enhanced by a custom dataset of question-SQL-answer trios to improve comprehension.
  * These trios are vectorized using Hugging Face's neural encoders and stored in Chroma DB for semantic searching and precise query resolution.Technologies Used: Google PALM 2, Hugging Face, React, Node.js, HTML, CSS, REST API, SQL, Chroma DB
- **Doc-Aid: Medical Recommendation Application**:
  * Designed a healthcare application that integrates a weighted knowledge graph from diverse medical data
  * Enhanced with Bio-Epidemiology NER and a hybrid Naive Bayes-ANN model, achieving 89% accuracy in disease prediction based on symptoms input by users..
  * Implemented user-friendly features such as disease tracking and prescription uploads, all supported by a robust backend. Technologies Used: Python, HTML, CSS, PHP, Naive Bayes, ANN, Bio-Epidemiology NER
- **PCOS Detection Using MLOPS DVC Pipeline**:
  * a high-accuracy Python application for Polycystic Ovary Syndrome (PCOS) detection using a hybrid CNN model from ultrasound images, achieving a 95.3% accuracy rate.
  * Pioneered efficient MLOps practices using DVC, modularized the codebase, and implemented CI/CD automation via GitHub, enhancing the streamline of development and deployment processes. Technologies Used: Python, Deep Learning, CNN, MLOps, DVC, GitHub CI/CD

ACHIEVEMENTS

- **Research paper published:** Reinforced Hybrid Graph Transformer for Medical Recommendation. Collaborated with Aditya Kadam and Prof. Sagar Pande to develop MEDx, a pioneering hybrid graph and GPT-powered medical recommendation system.
- Secured 7th Rank among all Engineering Clinics Group Projects in VIT AP. Designed cost-efficient weapon and intruder detection drone leveraging YOLOv8 with an accuracy of 85% for real-time firearm identification in live video streams.

POSITION OF RESPONSIBILITY

- **President of Hostel Sports Committee,** VIT-AP, India. Conducted inter-hostel sports competitions & organized various sports events. (Jan 2022 - Dec 2022)
- **President of Marathi Association,** VIT-AP, India. Planned and executed numerous cultural events, ensuring smooth and engaging experiences. (Jan 2018 - Present)